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WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

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REPORT FOR THE MONTH OF DECEMBER, 1934.

JUDITH BASIN:

The mild weather that has prevailed for the past several weeks came to an abrupt end December 20. On the following day about 5 inches of wet snow fell and the weather turned decidedly colder. The temperature on Christmas morning was -23°. The snow drifted badly, and the cover on summer fallowed fields was only about 2 inches at the end of the month. The highway in front of the station was blocked with drifted snow on two different days and finally had to be opened with a snow plow. All roads are covered with ice and are exceedingly dangerous to automobile traffic. The fall of snow was not so heavy in some parts of the Judith Basin, and in these areas there has been considerable soil blowing.

Maximum temperature, 65°; minimum, -23°; precipitation, 0.54 inch;
Precipitation for 1934, 9.57 inches.

HUNTLEY:

Comparatively mild weather prevailed from December 1 to 24. Precipitation in the form of rain which changed to snow fell on the 1st, and as the ground was not frozen practically all of the 0.26 inch of moisture entered the soil within a few hours. A light rain fell on December 21. On the evening of December 24 a light snow began to fall, and during the night the temperature dropped abruptly to -9°. Below zero minima were recorded daily during the period December 24 - 29, inclusive, the lowest temperature being -13° on December 28. Snow amounting to 0.41 inch of precipitation fell on December 26, and at the close of the month the ground was covered uniformly to a depth of 2 inches of well packed snow.

The condition of winter wheat and rye continues to be poor. Despite the moisture and mild weather during the first half of December, fall-sown grains showed little recovery from their dry and weather-beaten appearance of the latter part of November. Late-sown fields appear to be less injured by fall drought than fields which were sown early, although the latter looked much more promising for a while.

The Sixth Annual Lamb Feeders' Day was held at the Station December 21. About 90 farmers and commercial feeders attended the meeting at which the results of the feeding experiments were discussed and the lambs were inspected. The attendance this year was somewhat smaller than usual, due in part, to the unpleasant weather on that day and also to the fact that fewer lambs are being fed in this locality this season.

Maximum temperature, 59°; minimum, -13°; precipitation, 0.74 inch;
Precipitation for 1934, 7.52 inches; normal, 13.94 inches.

SHERIDAN:

Warm weather prevailed over the first three weeks of the month, but temperatures for the last 10 days were slightly below the station average. The mean temperature for the month was 6° above the station average for December. Precipitation was below the average, but there was a light covering of snow on the ground the last week or so. Wind movement was above the average.

No feeding of livestock has yet been necessary in this section, where range is available.

Maximum temperature, 58°; minimum, -12°; precipitation, 0.32 inch.

DICKINSON:

Most of December was moderate in temperature, but a cold spell during the last week, with a minimum of -25° on December 26, brought the mean for the month down to normal. Precipitation amounted to only 0.22 inch. This occurred on 10 days with a few fogs and heavy frosts that kept thistles and other scanty vegetation moist so that stock running in the fields required little other feed.

Precipitation in 1934 amounted to only 7.91 inches. This is the lowest in 43 years of record. The previous low was 8.37 inches in 1919. The winter of 1933 was mild and dry, so there was no water in the soil to start crops in the spring. May precipitation amounted to only 0.18 inch, and the total for the first five months was the lowest of record. Extreme heat in May injured crops which started growth, but the soil was so dry that some corn as well as part of the small grains lay dry in the soil till rains in June caused germination. June precipitation was above average and a few fields looked fair early in July, but drought and heat caused rapid drying out and low yields. No good rains came after harvest, and the soil stayed too dry for fall plowing. Snowfall in 1934 amounted to 14.9 inches, which is about half the average amount.

MANDAN:

Agronomy - The month of December was nearly normal in temperature, but below in precipitation. There were no high winds. There were 13 days with below zero temperatures ranging from -2° to -24° on the 25th. There was over 4 inches of light dry snow.

A number of records were broken during 1934. The total precipitation of 8.13 inches was the lowest of 60 years record for this vicinity. The average annual precipitation for the 60 years is 16.65 inches; at the station for the 20 years, 1915-1934, 14.99 inches; and for the past 10 years, 14.76 inches. The highest temperature during the summer was 107° on July 18.

All crops produced yields much below normal. Corn failed to produce grain for the first time in the history of the station.

The following table shows the crop yields for 1934 and the 20-year average:

	1934		20-year average.	
	Grain	Stover	Grain	Stover
Corn	0	941	26.3	2,073
Wheat	1.6		15.8	
Oats	1.3		34.3	
Barley	0		19.4	

In the grazing experiment the production of feed was the poorest during the 20 years of the experiment. The one steer to 7-acre pasture failed for the first time to carry the cattle for the season. The one steer to 10-acre pasture carried the steers with normal gains.

Maximum temperature, 48°; minimum, -24°; precipitation, 0.14 inch.

ARCHER:

During December the weather, on the whole, was mild and dry. The lowest temperature, 3°, was recorded the morning of December 23. The highest temperature, 56°, occurred December 9. The precipitation consisted of seven light flurries of snow which totaled 0.07 of an inch. The total precipitation for the year was 8.85 inches, which makes it the driest year in the history of the station. The next driest years were 1931 and 1932, each receiving 9.90 inches of precipitation. The wind was quite severe on several occasions. It stirred up great clouds of dust especially from tilled fields where precautions had not been taken to prevent soil blowing.

Winter wheat on fallow is in very poor condition. The plants in most cases are alive. At the station the rabbits have eaten off all visible green leaves, and in some cases have removed the loose soil from around the crowns of the plants in order to eat further.

Livestock have held their own fairly well, however, the prairie grasses are so dry that they crush when stepped on. This condition causes much loss of feed at a time when it is badly needed. However, considerable corn fodder is being offered for sale.

Director W. L. Quayle was a station visitor December 28.

Maximum temperature, 56°; minimum, 3°; precipitation, 0.07 inch.

AKRON:

Snow had all disappeared by the end of the month. The month was characterized by moderate, sunshiny weather, which has required a minimum of feed for livestock and of fuel for home warmth. Minimum temperature for the month and for the winter thus far was zero, on the night of the 6th. Precipitation for the month amounted to 0.09 inch made up of three snow storms, two measurable and the third a trace.

High winds caused some soil blowing during the last two weeks of the month, though these winds were not of regular occurrence or of long duration. However they have started some soil moving.

Local papers recount many rabbit drives all over northeastern Colorado, with generally very good kills.

COLBY:

The dry weather continued through December. Precipitation was recorded on seven days, but none of it penetrated the soil beneath the surface. It was warmer than usual and was pleasant most of the time. Snow fell on five different days, but the total was only 3 inches.

Most of the winter wheat on the Station is dead. There are still a few fields in this county which look promising. The growth is being kept down by livestock, especially rabbits. Thousands of rabbits are being killed in organized hunts where clubs are used as weapons. Two or three of these hunts are held each week in this vicinity.

The alleys and roadways in the D. L. A. project were all listed this month to protect the plots against blowing. The fallow plots which were not seeded to wheat were gone over with a furrow drill to ridge the surface. This work was delayed in the hope that it could be done after the soil was wet, but it was thought best not to delay longer for fear the ground would freeze up in case moisture did come. The ground was loose and turned up dusty in most places. It is not as good protection against blowing as is needed at this time. On two days high winds have caused considerable soil blowing in the vicinity.

A peculiar phenomenon was noticed on a number of fields on the morning of the 21st. About an inch of wet snow fell during the night. During a short period in the night a hard wind blew. The snow was not drifted, but on several fields there were countless snow balls, varying in size up to the size of oil barrels. They had the appearance of rolls of cotton batting. The core was entirely of snow in most cases, although now and then a weed or some other foreign substance formed the center. These were apparently rolled up by the wind the same as when rolled by boys for making a snow man. They were found only on widely scattered fields, here and there.

Maximum temperature, 62°; minimum, 2°; precipitation, 0.23 inch; snowfall, 3 inches.

Precipitation, 1934, 7.37 inches; 47-year average, 17.77 inches. The lowest precipitation on record here for a year was 6.62 inches in 1910. This year ranks next to the lowest.

HAYS:

December was another dry month. The temperatures were generally mild for winter weather with no extreme highs or lows. Generally the month was sunny and quiet. There was little wind, except for four or five days during which time the velocity was not such as to start soil blowing, although the air carried considerable dust from some distant localities. Regular Indian summer prevailed most of the month. It was a good month for all kinds of work, including field work, except for two short periods, one around the 7th and another at the close of the month when the ground was frozen sufficiently to interfere with field work.

Maximum temperature for the month, 56°; minimum, 3°; precipitation, 0.02 inch.

The total precipitation for the year was 16.06 inches as compared with 22.88 inches for a 67-year average. Most of the precipitation during the year occurred in showers either too small to be of much value or of a torrential nature with considerable loss by run-off. This fact added to the seriousness of the shortage of the annual precipitation. The two-year period ending with December, 1934, is the second driest two-year period on record for Hays. It was the hottest two-year period and had the greatest loss of water from the evaporation tank, since such data have been recorded at this station.

Winter wheat is alive and has a chance for a crop, but it does not look promising except on fields having a long season for preparation and on fallow. On such fields the prospects are below normal. The only plot on the project that does not seem to be retarded by the drought is in rotation 570 where wheat is sown on a 3-year fallow. On this rotation the 1934 wheat appears to have fed freely on moisture in the eight foot of soil and some in the ninth foot. The yield of 20 bushels per acre from it, however, was exceeded by some

plots that were fallowed but one year.

The top-soil on all wheat plots is still in good condition to resist wind. Corn and kafir stubble plots were in such condition it was necessary to cultivate them earlier to make them safe against blowing. Wheat and other small grain stubble plots to be left for spring work were covered or partially covered with a growth of weeds and Russian thistles dwarfed by fall clipping with mower. These have remained on the ground fairly well until recently. They are now all breaking loose and ready to move with the first heavy wind, after which the soil will move at the least provocation. It is planned now to remove these thistles and cultivate the surface (as soon as the ground thaws) to prevent the thistles piling up on the fence and to remove the hazard to other plots, which if undisturbed will be safe.

GARDEN CITY:

The precipitation for December was 0.02 inch, in three snow storms. The total precipitation for 1934 was 7.08 inches.

Prospects for a crop of winter wheat for 1935 are not too bright. It is believed, however, that with favorable conditions from now until harvest a normal to high yield may yet be obtained. None of the wheat in this area made sufficient growth for pasture. A small strip, beginning about 10 miles east of the station, had fair early rains and the farmers planted early. The wheat in this strip made good early growth, but the lack of subsequent rains caused this growth to die. This is the only area where the wheat has died back to the ground to my knowledge. Whether it can come back or not is doubtful. Wheat pasture in the counties to the north of here is about depleted from stocking off with sheep and other livestock. Areas where good heavy stands prevailed early in the season are now as bare as a floor from over pasturing due to lack of other feeds. I should say that the county has an even chance yet for a crop of wheat.

A number of rabbit drives have been put on in the county, and several more are scheduled for early January. In three of these drives it was estimated that about 12,000 rabbits were killed. In each drive it was considered that nearly as many escaped as were driven into the trap. It is surprising how a rabbit can break through even a close line with clubs flying. This pest is certainly one big hazard to feed supplies in a year like this.

A few plots were chiseled this month for protection against soil blowing. To-day, December 31, the air has been filled with dust. Maximum temperature, 70°; minimum, 7°.

TUCUMCARI:

December was unusually dry, windy, and warm, completing a year which broke climatic records with rare abandon. The month was the sixth driest in 30 years, the windiest December since 1918, and the mean temperature was 4° above the long time average.

The 1934 mean temperature was the highest on record, as was that for the six-month growing season. Eleven of the twelve months were above normal.

Total precipitation of 6.13 inches for the year was by far the lowest on record, being only 36% of normal. Each month was below normal. Precipitation for the 16 months, September, 1933, to date, 7.50 inches, is only 35% of normal for this period.

Evaporation during the 1934 growing season was highest on record, over a period of 22 years. The total of 67.222 inches was 122% of the long-time average.

Winter, spring, and early summer drought prevented planting of crops until the middle of July. Moisture at that time permitted germination, but soon seedlings were dying for lack of water. Partial stands survived, but in most cases the growth was exceptionally meager. With but few exceptions, crops were a failure. Ranges were brown and bare in spring, unimproved in the summer, and at present show little change except from additional tramping by livestock in search of an occasional bit of grass hidden in yucca or mesquite plant. When Government buying in this county reached a total of about 20,000 cattle, the number condemned was nearly as high as the number bought for shipment or slaughter. Purchases in this county now probably exceed 30,000 head.

Precipitation in form of both rain and snow the past 45 days on the plains portion of the county has placed wheat, which was barely surviving, in excellent condition for pasturing. Many cattle which would otherwise be starving are now improving in flesh on this pasture. There is grave danger of over-grazing. Cattle not on wheat pasture are being fed shipped-in feed or chopped yucca--or are attempting to delay slow starvation by continual tramping of a bare and wind-swept range.

Wind movement has been unusually high the past few months, and there is insufficient crop residue to hold drifting sand. Cultivation has been effective to date, but fields and tree rows are becoming ashy and clod-less, indicating serious trouble in the near future.

DALHART:

There was no recorded precipitation for the month. The temperatures and wind velocities were near normal. The soil blowing was severe on several occasions, but so far the station has been held in place. The young conifer planting is the only place that gives especial concern. The soil shears across the surface on that planting and, despite cultivations and an attempt to obtain a cover crop, is deposited immediately east and south of the planting. Winter wheat and rye, where seeded early, is alive with the growth definitely checked.

The average yields of milo and kafir on the rotation plots for the year were approximately 2 and 3 bushels to the acre, respectively.

Total precipitation for 1934 was 9.78 inches, which follows the previous low precipitation year of 1933 with 10.14 inches. September precipitation of 1.94 inches was the only precipitation which exceeded the average precipitation for the respective month. Likewise the mean temperature for September was the only mean temperature which was less than the average for the individual month. The average annual precipitation is now 18.18 inches. The average of the 12 low precipitation years out of the past 27 years is 13.63 inches; the average precipitation for the past four years is 13.42 inches. At the present time the seasonal (winter) soil blowing has not been so severe as last year. A light covering of snow or the removal of a few more thistles from the fields could easily cause the soil to start drifting again.

E. R. Steen, Cereal Crops and Diseases, employed at this station for the past four summers, has recently been added to the local Department of Interior Wind Erosion Project as Junior Soil Erosion Specialist.

BIG SPRING:

Weather conditions during the past month have been very mild. Temperatures have been above normal during a greater part of the month. Wind velocity on the whole has been about normal; there has been only one occasion when the wind started any soil movement. The precipitation for the year was 12.69 inches, normal 18.73. The deficiency was 6.04 inches or about 33-1/3 per cent. During the growing season 7.90 inches was received, or about 5 inches less than normal for this period.

Threshing of grain and forage sorghums was completed during the month; yields were considerably below normal. Listing and plowing of the fall worked plots in the rotations was also completed. There was enough moisture in the top soil so that a very good job of plowing was done.

Other work has consisted of cutting milo stalks and plowing increase fields.

Maximum temperature, 77°; minimum, 22°; precipitation, 0.05 inch.

LAWTON:

With the exception of a few cloudy, partly foggy days near the end of the month, December weather was clear, dry, and favorable to the prosecution of outdoor farm work.

Two little showers of 0.15 inch on the 17th and 18th represent the total precipitation for the month, leaving a deficiency of 1.45 inches for December. The total precipitation of 20.31 inches for the year was 10.54 inches below normal.

The 3.32 inches of rainfall received in November will likely be sufficient for small grains until early spring growth is renewed. Such growth is as yet dependent upon surface moisture.

The last remanents of cotton are still being picked on surrounding farms. There has been but little fall or winter plowing done so far. A few farmers have made some early preparation for spring seeding of oats.

WOODWARD:

Interest in farm conditions at present is centered almost exclusively on wheat. That on "strong" land prepared early stooled very heavily and made a rank growth early in the season, due to continued light rains. Practically all moisture was used soon after it fell, leaving the soil dry. Immense numbers of stock were pastured on wheat, which ate it off very short. There is now so little cover that a great deal of damage might easily result from blowing. On rank growing wheat which was not pastured a third to half the leaf surface has died. Part of the leaves have died entirely. Others have been killed back about half way. Killing was due to drought and cold snaps.

There was little rain in December, but the 0.89 inch on the 17th and 18th was a life saver to the wheat. So much of the top growth had been killed by grazing, drought, or freezing that much

of this moisture was not used immediately. Soil is in many cases moist to 1-1/2 feet or more, which should hold wheat from dying for some time.

Owing to the very late date of a killing frost, the wheat planted on sorghum land had very little moisture and has made a very meagre growth. This is true also of wheat on sandy land. This did not seem to benefit greatly by long spells of light rains in September, October, and November. What the explanation is, we do not know. There will doubtless be much wheat blown out on sandy land.

The whole fall has been very mild and pleasant with few low temperatures or high winds. If colder weather does not set in soon, fruit and flower buds will swell with the probability they will be killed by late freezes.

The work of the month has consisted of working over machinery, grading and surfacing roads, and picking seed for the shelter-belt project.

Maximum temperature, 69°; minimum, 13°; precipitation, 0.93 inch.

PENDLETON:

Temperatures during December were quite moderate, with a mean of 37.4°, this was however, 4.4° less than the mean for December, 1933. All the fall sown wheat is in fine condition due to mild temperatures and warm rains. The last date of seeding was sown on December 1, and emerged with good stands. Stockmen have had a very favorable fall and winter season, with more than the usual amount of pasturage. Only about half an inch of snow fell during December. Buds are beginning to show signs of life on the maple, Russian olive and Chinese elm trees. Leaves are beginning to form on the Thunberg spirea. The Reeves spirea has retained all its leaves so far this season. Daffodils and tulips are emerging. All the farmers are wishing for about 2 feet of snow, to be followed by some cold weather.

Maximum temperature, 56°; minimum, 25°; minimum for the calendar year 1934, 21° on March 21, 1934; precipitation, 1.73 inches; precipitation for the calendar year 1934, 12.14 inches.

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